### SEQUENCE LISTING

```
<110> Michael, T. Migawa
Walter F. Lima
      Eric E. Swayze
      Joshua Nichols
      Hongjiang Wu
      Thazha P. Prakash
      Tadeusz Krzysztof Wyrzykiewicz
      Balkrishen Bhat
      Stanley T. Crooke
<120> COMPOSITIONS AND METHODS FOR OPTIMIZING
      CLEAVAGE OF RNA BY RNASE H
<130> CORE0037USA
<140> 10/592,919
<141> 2007-07-31
<150> PCT/US2005/008428
<151> 2005-03-15
<150> 60/609,516
<151> 2004-09-13
<150> 60/567,016
<151> 2004-04-29
<150> 60/553,646
<151> 2004-03-15
<160> 28
<170> FastSEQ for Windows Version 4.0
<210> 1
<211> 20
<212> DNA
<213> Artificial Sequence
<223> Synthetic oligonucleotide
<400> 1
                                                                            20
ctacgctttc cacgcacagt
<210> 2
<211> 20
<212> DNA
<213> Artificial Sequence
<220>
<223> Synthetic oligonucleotide
                                                                            20
agtttaggtc tccgatcgtc
<210> 3
<211> 20
<212> DNA
<213> Artificial Sequence
<223> Synthetic oligonucleotide
```

```
<400> 3
                                                                                                                                20
ctgctagcct ctggatttga
<210> 4
<211> 2160
 <212> DNA
 <213> Mus musculus
<400> 4
ggcgccctgc tctcccggcg gggcggcgga gggggcgggc tggccggcgc acggtgatgt 60 ggcgggactc tttgtgcact gcggcaggat acgcgcttgg gcgtcgggac gcggctgcgc 120 tcagctctct cctctcggaa gctgcagcca tgatggaagt ttgagagttg agccgctgtg 180 aggccaggc cggcgaggc gagggagatg agagacggcg gcggccacgg cccagagcc 240 ctctcagcgc ctgtgagcag ccgcgggggc agcgccctcg gggagccggc cgggcggcgg 300
cggcggcagc ggcggcgggc ctcgcctcct cgtcgtctgt tctaaccggg cagcttctga 360
gcagcttcgg agagagacgg tggaagaagc cgtgggctcg agcgggagcc ggcgcaggct 420
cggcggctgc acctcccgct cctggagcgg gggggagaag cggcggcggc ggccgcggct 480
ccgggaggg ggtcggagtc gcctgtcacc attgccaggg ctgggaacgc cggagagttg 540 ctctctccc ttctcctgc tccaacacgg cggcggcggc ggcggcacgt ccagggaccc 600 gggccggtgt taagcctcc gtccgccgc gccgcaccc ccctggcccg ggctccggag 660 gccgccggag gaggcagccg ctgcggagat tatccgtctt ctcccattc cgctgcctg 720 gctgccaggc ctctggctgc tgaggagaag caggcccagt ctctgcaacc atccagcagc 780 cgccgcagca gccattaccc ggctgcggtc atccagagagagag caggagagaag cggcagcaga gcgaggggca 840
tcagcgaccg ccaagtccag agccatttcc atcctgcaga agaagcctcg ccaccagcag 900 cttctgccat ctctctcct ctttttcttc agccacaggc tcccagacat gacagccatc 960
atcaaagaga tcgttagcag aaacaaaagg agatatcaag aggatggatt cgacttagac 1020
ttgacctata tttatccaaa tattattgct atgggatttc ctgcagaaag acttgaaggt 1080
gtatacagga acaatattga tgatgtagta aggtttttgg attcaaagca taaaaaccat 1140
tacaagatat acaatctatg tgctgagaga cattatgaca ccgccaaatt taactgcaga 1200
gttgcacagt atccttttga agaccataac ccaccacagc tagaacttat caaacccttc 1260 tgtgaagatc ttgaccaatg gctaagtgaa gatgacaatc atgttgcagc aattcactgt 1320 aaagctggaa agggacggac tggtgtaatg atttgtgcat atttattgca tcggggcaaa 1380 tttttaaagg cacaagaggc cctagattt tatggggaag taaggaccag agacaaaaag 1440 ggagtcacaa ttcccagtca gaggcgctat gtatattatt atagctacct gctaaaaaat 1500
cacctggatt acagacccgt ggcactgctg tttcacaaga tgatgtttga aactattcca 1560
atgttcagtg gcggaacttg caatcctcag tttgtggtct gccagctaaa ggtgaagata 1620
tattcctcca attcaggacc cacgcggcgg gaggacaagt tcatgtactt tgagttccct 1680
cagccattgc ctgtgtgtgg tgatatcaaa gtagagttct tccacaaaca gaacaagatg 1740 ctcaaaaagg acaaaatgtt tcacttttgg gtaaatacgt tcttcatacc aggaccagag 1800 gaaacctcag aaaaagtgga aaatggaagt ctttgtgatc aggaaatcga tagcatttgc 1860 agtatagag gtgcagataa tgacaaggag tatcttgtac tcaccctaac aaaaaacgat 1920 cttgacaaag caaacaaga caaggccaac cgatacttct ctccaaattt taaggtgaaa 1980 ctatacttta caaaaacagt agaggagcca tcaaattctag aggctagcag ttcaacttct 2040
 gtgactccag atgttagtğa căatgaăcct gatcattată gătattctgă caccactgac 2100
tctgatccag agaatgaacc ttttgatgaa gatcagcatt cacaaattac aaaagtctga 2160
 <210> 5
 <211> 24
 <212> DNA
<213> Artificial Sequence
 <223> Synthetic oligonucleotide
                                                                                                                                24
atgacaatca tgttgcagca attc
<210> 6
 <211> 25
 <212> DNA
 <213> Artificial Sequence
 <223> Synthetic oligonucleotide
```

<400> 6 cgatgcaata aatatgcaca aatca	25
<210> 7 <211> 28 <212> DNA <213> Artificial Sequence	
<220> <223> Synthetic oligonucleotide	
<400> 7 ctgtaaagct ggaaagggac ggactggt	28
<210> 8 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> Synthetic oligonucleotide	
<400> 8 ccttccctga aggttcctcc	20
<210> 9	
<400> 9 000	
<210> 10 <211> 12 <212> RNA <213> Artificial Sequence	
<220> <223> Synthetic oligonucleotide	
<400> 10 cgcgaauucg cg	12
<210> 11 <211> 12 <212> RNA <213> Artificial Sequence	
<220> <223> Synthetic oligonucleotide	
<400> 11 gcgcuuaagc gc	12
<210> 12 <211> 19 <212> RNA <213> Artificial Sequence	
<220> <223> Synthetic oligonucleotide	
<400> 12 cgagaggcgg acgggaccg	19
<210> 13 <211> 21	

```
<212> DNA
<213> Artificial Sequence
<223> Synthetic oligonucleotide
<220>
<221> misc_feature
<222> 1-19
<223> Bases at these positions are RNA
<400> 13
                                                                  21
cgagaggcgg acgggaccgt t
<210> 14
<211> 21
<212> DNA
<213> Artificial Sequence
<220>
<223> Synthetic oligonucleotide
<220>
<223> Bases at these positions are RNA
<400> 14
                                                                  21
cggtcccgtc cgcctctcgt t
<210> 15
<211> 20
<212> DNA
<213> Artificial Sequence
<220>
<223> Synthetic oligonucleotide
<220>
<221> modified_base
<222> 4
<223> n = tetrafluoroindole
<400> 15
                                                                  20
ctgntagcct ctggatttga
<210> 16
<211> 20
<212> DNA
<213> Artificial Sequence
<223> Synthetic oligonucleotide
<220>
<221> modified_base
<222> 5
<223> n = tetrafluoroindole
<400> 16
                                                                  20
ctgcnagcct ctggatttga
<210> 17
<211> 20
<212> DNA
```

## CORE0037USASEQ5.txt <213> Artificial Sequence <220> <223> Synthetic oligonucleotide <221> modified\_base <222> 6 <223> n = tetrafluoroindole <400> 17 ctgctngcct ctggatttga 20 <210> 18 <211> 20 <212> DNA <213> Artificial Sequence <223> Synthetic oligonucleotide <220> <221> modified\_base <222> 7 $<2\overline{2}3>$ n = tetrafluoroindole <400> 18 20 ctgctancct ctggatttga <210> 19 <211> 20 <212> DNA <213> Artificial Sequence <223> Synthetic oligonucleotide <220> <221> modified\_base <222> 8 <223> n = tetrafluoroindole <400> 19 20 ctgctagnct ctggatttga <210> 20 <211> 20 <212> DNA <213> Artificial Sequence <223> Synthetic oligonucleotide <221> modified\_base <222> 10 <223> n = tetrafluoroindole <400> 20 20 ctgctagccn ctggatttga <210> 21 <211> 20 <212> DNA

<213> Artificial Sequence

## CORE0037USASEQ5.txt <220> <223> Synthetic oligonucleotide <221> modified\_base <222> 5 <223> n = N-3-methyl-2'MOE-thymidine <400> 21 20 ctgcnagcct ctggatttga <210> 22 <211> 20 <212> DNA <213> Artificial Sequence <223> Synthetic oligonucleotide <220> <221> modified\_base <222> 17 <223> n = tetrafluoroindole <400> 22 20 ctgctagcct ctggatntga <210> 23 <211> 20 <212> DNA <213> Artificial Sequence <220> <223> Synthetic oligonucleotide <220> <221> modified\_base <222> 16 <223> n = tetrafluoroindole <400> 23 20 ctgctagcct ctgganttga <210> 24 <211> 20 <212> DNA <213> Artificial Sequence <223> Synthetic oligonucleotide <220> <221> modified\_base <222> 15 <223> n = tetrafluoroindole <400> 24 20 ctgctagcct ctggntttga <210> 25 <211> 20 <212> DNA <213> Artificial Sequence

<223> Synthetic oligonucleotide

```
<220>
<221> modified_base
<222> 14
<223> n = tetrafluoroindole
<400> 25
                                                                          20
ctgctagcct ctgnatttga
<210> 26
<211> 20
<212> DNA
<213> Artificial Sequence
<223> Synthetic oligonucleotide
<220>
<221> modified_base
<222> 13
<223> n = tetrafluoroindole
<400> 26
                                                                          20
ctgctagcct ctngatttga
<210> 27
<211> 20
<212> DNA
<213> Artificial Sequence
<220>
<223> Synthetic oligonucleotide
<220>
<221> modified_base
<222> 5, 15
<223> n = tetrafluoroindole
<400> 27
                                                                          20
ctgcnagcct ctggntttga
<210> 28
<211> 20
<212> DNA
<213> Artificial Sequence
<223> Synthetic oligonucleotide
<220>
<221> modified_base
<222> 16
<223> n = N-3-methyl-2'MOE-thymidine
<400> 28
                                                                          20
ctgctagcct ctgganttga
```